

Claims

1. A globe comprising
5 a globe sphere (24) suspended contactless and magnetically, whose position is maintained levitated via a permanent magnet (26) mounted on said sphere, interacting with an electromagnet (18) arranged in connection with a globe support (12) above said sphere,
an electrical controller (22) for said electromagnet and connected at its input end
10 to a magnetic field sensor (20), particularly a Hall effect sensor, and which controls the position of said globe sphere by energizing/deenergizing said electromagnet or by controlling the current flow through said electromagnet as a function of the output signals of said magnetic field sensor,
characterized in that
15 a microcomputer (32) is provided, receiving the output signal of said magnetic field sensor,
said microcontroller comprises at least one register/counter for sensing the energized/deenergized status and/or a device for sensing the current flow through, or the voltage at, said electromagnet over at least one defined time period, and that
20 said globe comprises a switching/control means for influencing the duty cycle of said electromagnet and/or said current flow through, said voltage at, said electromagnet as a function of the time profile of each energized/deenergized status sensed by said microcontroller and/or said sensed current flow/voltage.
- 25 2. The globe as set forth in claim 1, characterized in that said microcomputer (32) comprises at least one memory sensing each energized/deenergized status over a lengthy time period of at least 10 ms, preferably 500 ms to 5 s, and a reference value memory for storing a reference duty cycle and that said globe comprises a controlling and/or switching means with which the actual duty cycle of said
30 electromagnet can be influenced in the direction of said reference value.
3. The globe as set forth in claim 1 or 2, characterized in that a memory/counter senses each energized/deenergized status over a shorter time period of e.g. 1 to 100 ms, preferably 5 to 50 ms and a comparison circuit or subtraction circuit is

provided which senses the change in said duty cycle as compared to previous sensings, and that said globe comprises a controlling and/or switching means with which said actual duty cycle of said electromagnet can be influenced to boost/reduce said change.

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4. The globe as set forth in any of the preceding claims, characterized in that an analog/digital converter (34) is provided for digitizing the output signal of said magnetic field sensor (20) as the input signal for said microcomputer (32).

10 5. The globe as set forth in any of the preceding claims, characterized in that said controller (22) comprises a switch for deenergizing said electromagnet as soon as the output signal of said magnetic field sensor drops below a predefined value.

15 6. The globe as set forth in any of the preceding claims, characterized in that said controller (22) comprises a switch for energizing said electromagnet as soon as the output signal of said magnetic field sensor exceeds a predefined value.

20 7. A method of controlling the position of a globe sphere (24) suspended levitated in a globe support (12) in making use of a permanent magnet (26) in connection with said sphere and interacting with an electromagnet (18) arranged in connection with said globe support above said sphere, comprising an electrical controller (22) for said electromagnet connected at its input end to a magnetic field sensor (20), particularly a Hall effect sensor, for detecting the spacing of said permanent magnet from said electromagnet, and to control the position of said globe sphere by energizing/deenergizing said electromagnet or by controlling the current flow through said electromagnet as a function of the output signals of said magnetic field sensor,

25 **characterized in that**
30 each energized/deenergized status of said electromagnet or the current flow through/ voltage at said electromagnet is sensed and that from the value of the duty cycle or current or voltage profile or change thereof a signal is derived for controlling and/or correcting activation of said electromagnet.

8. The method as set forth in claim 7, characterized in that said actual duty cycle is compared to a reference value for the wanted duty cycle of said electromagnet from which a signal is derived for controlling and/or correcting said electromagnet.

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9. The method as set forth in claim 7 or 8, characterized in that the changes in at least two sensings in sequence of said duty cycle are used for deriving a signal for controlling and/or correcting said electromagnet.

- 10 10. The method as set forth in any of the claims 7 to 9, characterized in that said electromagnet is deenergized as soon as the output signal of said magnetic field sensor falls below a first threshold value.

- 15 11. The method as set forth in any of the claims 7 to 9, characterized in that said electromagnet is energized as soon as the output signal of said magnetic field sensor exceeds a threshold value.